

KCET - 2021

ZOOLOGY

Q1 Identify the correct statement/s regarding class Aves

1. Forelimbs are modified into wings and hindlimbs for walking/swimming
2. Heart is completely four-chambered
3. They are homeotherms
4. They are oviparous and development is direct

- (A) Both 1 and 3
(B) Both 1 and 4
(C) 1, 2 and 3
(D) All are correct

Q2 The following type of cell junction is not found in animal tissues

- (A) Adhering junction
(B) Tight junction
(C) Gap junction
(D) Loose junction

Q3 Match the compounds of Column I with their functions in Column II.

Column I	Column II
1. Trypsin	p. Fights infectious agents
2. GLUT-4	q. Intercellular ground substance
3. Collagen	r. Works as an enzyme
4. Antibody	s. Enables glucose transport

- (A) 1-s, 2-r, 3-q, 4-p
(B) 1-r, 2-s, 3-p, 4-q
(C) 1-s, 2-r, 3-p, 4-q
(D) 1-r, 2-s, 3-q, 4-p

Q4 Calculate the cardiac output on an individual having 70 heart beats/min with a stroke volume of 55 ml.

- (A) 3750 mL
(B) 125 mL
(C) 3850 mL
(D) None of the above

Q5 In a standard ECG, one of the following functions of its components is not correctly Interpreted

- (A) P wave is contraction of only left atria
(B) QRS complex represents ventricular contraction
(C) T wave is end of systole
(D) P wave is contraction of both atria

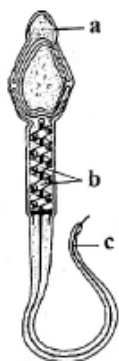
Q6 Match the hormones of Column I with its function in Column II

Column I	Column II
1. catecholamines	p. Diurnal rhythm
2. MSH	q. Immune response
3. Thymosins	r. Pigmentation
4. Melatonin	s. Stress hormone

- (A) 1-s, 2-r, 3-q, 4-p
(B) 1-r, 2-q, 3-s, 4-p
(C) 1-q, 2-s, 3-r, 4-p
(D) 1-p, 2-q, 3-r, 4-s



- Q7** In the given diagram of human sperm, identify the functions of the labelled parts. a, b and c.



- (A) a-Helps in penetration of sperm into ovum, b-Helps in movement of sperm, c-Provides energy for the movement of sperms into the female reproductive tract.
- (B) a-Helps in penetration of sperm into ovum, b-Provides energy for the movement of sperm, c-Helps in movement of sperm.
- (C) a-Helps in movement of sperm, b-Helps in penetration of sperm into ovum, c-Provides energy for the movement of sperms
- (D) a-Provides energy for the movement of sperm, b-Helps in movement of sperm, c-Helps in penetration of sperm into ovum
- Q8** Select the correct path of flow of milk during breast feeding.
- (A) Mammary tubules Mammary duct
Mammary ampulla Lactiferous duct
Alveoli
- (B) Mammary tubules Mammary duct
Lactiferous duct Mammary ampulla
Lactiferous duct
- (C) Alveoli Mammary tubules Mammary ampulla Mammary duct Lactiferous duct
- (D) Alveoli Mammary tubules Mammary duct Mammary ampulla Lactiferous duct
- Q9** Under the influence of oxytocin which layer of the uterus exhibits strong contractions during parturition ?
- (A) Endometrium (B) Myometrium
(C) Perimetrium (D) Both A and C

- Q10** Select the incorrect statement about contraceptives
- (A) They are regular requirements for the maintenance of reproductive health.
- (B) They have a significant role in checking uncontrolled growth of population.
- (C) They are practised against a natural reproductive events like conception of pregnancy.
- (D) The possible ill-effects like nausea, abdominal pain, irregular menstrual bleeding or even breast cancer should not be totally ignored
- Q11** The method of directly injecting a sperm into ovum is called
- (A) GIFT (B) ZIFT
(C) ICSI (D) IVF-ET
- Q12** Pneumonia is caused by
- (A) Streptococcus pneumoniae
(B) Haemophilus influenzae
(C) Both A and B
(D) None of these
- Q13** The development of quick immune response in a person infected with deadly microbes by administering preformed antibodies is
- (A) Active immunity
(B) Cell-mediated immunity
(C) Innate immunity
(D) Passive immunisation
- Q14** Which is the most feared property of malignant tumors?
- (A) Neoplasty
(B) Metastasis
(C) Rapid invasive growth
(D) Loss of contact inhibition



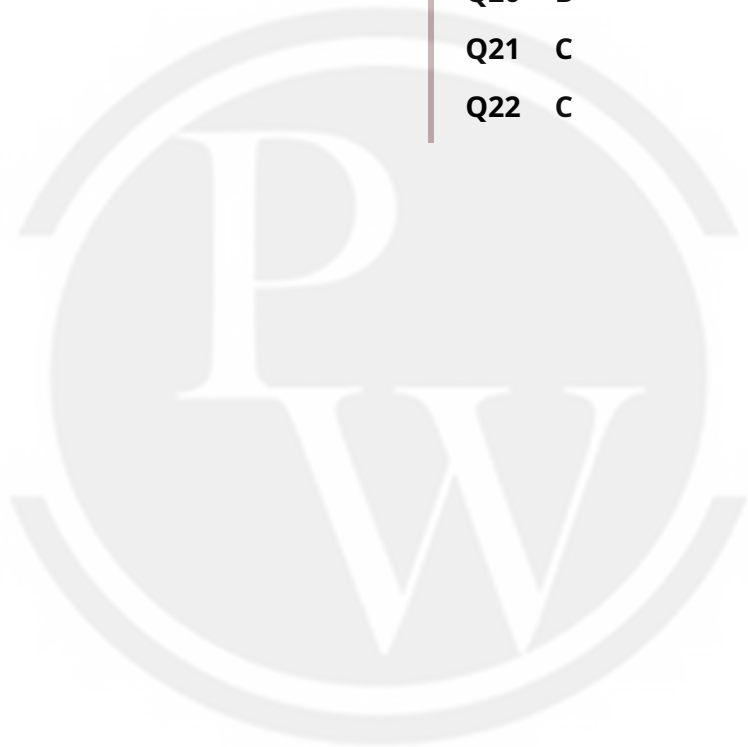
- Q15** Identify the techniques useful in detecting the cancers of internal organs
(A) CT
(B) MRI
(C) Radiography
(D) All of the above
- Q16** Which among the following plants is a source of drug which is native to America?
(A) Papaver somniferum
(B) Erythroxylum coca
(C) Cannabis sativa
(D) Atropa belladonna
- Q17** Taq polymerase that find its application in PCR is obtained from
(A) Thermus aquaticus
(B) Agrobacterium tumefaciens
(C) Bacillus thuringiensis
(D) Salmonella typhimurium
- Q18** rop-gene which codes of the proteins involved in the replication of the plasmid pBR322 in E.coli is located at restriction site of
(A) Hind III (B) EcoRI
(C) Pvu II (D) BamH I
- Q19** Rapid antigen test and RT-PCR are the two diagnosis test for Covid 19 virus PCR a molecular diagnostic tool, stands for
(A) Polymerase chain reaction
(B) Polymerase chain reagent
(C) Physiological chain reaction
(D) Physiological chain reagent
- Q20** Which of the following diagnostic tools allows detection of very low concentration bacterium or viruses by amplifying their nucleic acid?
(A) ELISA
(B) PCR
(C) Autoradiography
(D) rDNA technology
- Q21** Silencing of a gene could be achieved through the use of
(A) Short interfering RNA
(B) Antisense RNA
(C) Both A and B
(D) None
- Q22** α -1 antitrypsin is
(A) Antacid
(B) Enzyme
(C) Used to treat emphysema
(D) Used to treat arthritis



Answer Key

Q1 D
Q2 D
Q3 D
Q4 C
Q5 A
Q6 A
Q7 B
Q8 D
Q9 B
Q10 A
Q11 C

Q12 C
Q13 D
Q14 B
Q15 D
Q16 B
Q17 A
Q18 C
Q19 A
Q20 B
Q21 C
Q22 C



Hints & Solutions

Note: scan the QR code to watch video solution

Q1 Text Solution:

1. Birds possess wings for flight.
2. Heart is four-chambered.
3. Birds maintain constant body temperature.
4. They lay eggs.
5. Development is direct without larva

Q2 Text Solution:

1. Tight junctions prevent leakage.
2. Adhering junctions cement cells together.
3. Gap junctions help cell communication.
4. Loose junction is not present in animals.
5. Cell junctions maintain tissue integrity

Q3 Text Solution:

1. Trypsin acts as digestive enzyme.
2. GLUT-4 transports glucose into cells.
3. Collagen forms connective tissue matrix.
4. Antibodies protect against pathogens.
5. These molecules perform specialised functions

Q4 Text Solution:

1. Cardiac output = Heart rate $\times$ Stroke volume.
2. Heart rate = 70 beats/min.
3. Stroke volume = 55 mL.
4. Output = $70 \times 55 = 3850$ mL/min.
5. It indicates blood pumped per minute

Q5 Text Solution:

1. P wave represents atrial depolarisation.
2. Both atria contract together.
3. QRS complex indicates ventricular contraction.
4. T wave indicates ventricular relaxation.
5. Hence option a is incorrect

Q6 Text Solution:

1. Catecholamines act during stress.
2. MSH controls pigmentation.
3. Thymosins help immune response.
4. Melatonin regulates biological rhythm.
5. Hormones coordinate body functions

Q7 Text Solution:

1. Acrosome helps sperm penetrate ovum.
2. Middle piece contains mitochondria.
3. Mitochondria provide ATP energy.
4. Tail helps in movement.
5. Sperm is adapted for fertilisation

Q8 Text Solution:

1. Milk is produced in alveoli.
2. It passes into mammary tubules.
3. Tubules join to form ducts.
4. Ducts widen into ampulla.
5. Lactiferous ducts open outside

Q9 Text Solution:

1. Oxytocin stimulates uterine contraction.
2. Myometrium is muscular layer.
3. Strong contractions expel foetus.
4. Endometrium forms inner lining.
5. Perimetrium is outer covering.



Q10 Text Solution:

1. Contraceptives prevent unwanted pregnancy.
2. They help population control.
3. They act against natural conception.
4. Side effects may occur in some users.
5. They are not regular requirements for health

Q11 Text Solution:

1. ICSI means Intracytoplasmic sperm injection.
2. Single sperm is injected into ovum.
3. Used in infertility treatment.
4. Fertilisation occurs artificially.
5. It increases chances of conception.

Q12 Text Solution:

1. Pneumonia affects alveoli of lungs.
2. Streptococcus pneumoniae causes disease.
3. Haemophilus influenzae also causes infection.
4. Alveoli become filled with fluid.
5. Infection affects breathing efficiency.

Q13 Text Solution:

1. Ready-made antibodies are provided.
2. Protection develops immediately.
3. Immunity is temporary.
4. Used during severe infections.
5. Body does not produce antibodies itself

Q14 Text Solution:

1. Malignant tumours spread to distant sites.
2. Spread occurs through blood and lymph.
3. This process is called metastasis.
4. Secondary tumours are formed.
5. It makes cancer dangerous

Q15 Text Solution:

1. CT scanning detects internal abnormalities.
2. MRI provides detailed body images.
3. Radiography uses X-rays for diagnosis.
4. These methods detect tumours.
5. Early detection improves treatment

Q16 Text Solution:

1. Coca plant is native to America.
2. It produces cocaine alkaloid.
3. Drug affects nervous system.
4. It acts as stimulant.
5. Excessive use is harmful

Q17 Text Solution:

1. Taq polymerase is heat stable.
2. Obtained from thermophilic bacteria.
3. Used during PCR amplification.
4. It tolerates high temperatures.
5. Essential for molecular diagnosis

Q18 Text Solution:

1. pBR322 is cloning vector.
2. Rop gene regulates plasmid replication.
3. Pvu II site lies within rop gene.
4. Restriction sites help cloning.
5. Vector carries selectable markers



Q19 Text Solution:

1. PCR amplifies DNA segments.
2. Technique uses DNA polymerase.
3. Repeated cycles increase DNA copies.
4. Used in diagnosis and research.
5. It is molecular biology technique.

Q20 Text Solution:

1. PCR amplifies nucleic acid.
2. Small DNA quantity becomes detectable.
3. Useful in viral diagnosis.
4. Highly sensitive technique.
5. Detects pathogens early

Q21 Text Solution:

1. RNA interference suppresses gene expression.
2. siRNA blocks translation process.
3. Antisense RNA also inhibits expression.
4. Used in biotechnology research.
5. Helps control harmful genes

Q22 Text Solution:

1. α -1 antitrypsin is human protein.
2. Deficiency causes emphysema.
3. Protein therapy treats disorder.
4. Produced using biotechnology methods.
5. It protects lung tissues

[Android App](#)[iOS App](#)[PW Website](#)